

What is claimed is:

1. A watch-typed heartbeat sensing device for detecting at least one heartbeat signal of a user, comprising:
 - a casing, which defines an internal hollow space and comprises a first end, a second end and a watch band with two ends respectively connected to the first end and the second end of the body, a circuit board which is mounted in the hollow space of the casing comprising a first contact, a second contact, a third contact, a fourth contact and a control circuit;
 - a first pair of conductors, which is mounted at the first end of the body, comprising an inner plate and an outer plate respectively electrically connected to the first contact and the second contact of the circuit board; and
 - a second pair of conductors, which is mounted at the second end of the body, comprising an inner plate and an outer plate and respectively electrically connected to the third contact and the fourth contact of the circuit board;

wherein when the casing is put on a wrist of one hand of the user by means of the watch band, the inner plate of the first pair of conductors and the inner plate of the second pair of conductors contact the wrist of the user, and when the user puts his other hand onto the body of the heartbeat sensing device and contacts the outer plate of the first pair of conductors and the outer plate of the second pair of conductors, thereby two pairs of heartbeat signals are generated respectively at the first pair of conductors and the second pair of conductors and transmitted to the control circuit of the circuit board.
2. The watch-typed heartbeat sensing device as claimed in Claim 1, wherein the control circuit comprises:
 - a first pre-amplifier, which comprises a first input terminal connected to the first contact of the circuit board and a second input terminal connected to the second contact of the circuit board, for generating a first differential

signal;

a second pre-amplifier, which comprises a first input terminal connected to the third contact of the circuit board and a second input terminal connected to the fourth contact of the circuit board, for generating a second differential signal;

a differential amplifier, which comprises two differential signal input terminals, the first input terminal being connected to the first pre-amplifier for receiving the first differential signal, the second input terminal being connected to the second pre-amplifier for receiving the second differential signal, and the differential amplifier generating a differential output signal based on the difference between the first differential signal and the second differential signal;

a microprocessor, which receives the differential output signal from the differential amplifier and calculates and then forwards a heartbeat signal; and

a display, which receives the heartbeat signal from the microprocessor and displays the heartbeat signal.

3. The watch-typed heartbeat sensing device as claimed in Claim 2, wherein the control circuit further comprises a filter which is connected between the differential amplifier and the microprocessor for filtering the noise of the differential output signal received from the differential amplifier.
4. The watch-typed heartbeat sensing device as claimed in Claim 3, wherein the control circuit further comprises a shaping circuit which is connected between the filter and the microprocessor for shaping the heartbeat signal received from the filter.
5. The watch-typed heartbeat sensing device as claimed in Claim 1, wherein the

inner plate and the outer plate of the first pair of conductors is integrally formed on a bottom surface and an upper surface of the watch band and adjacent to the first end of the casing.

6. The watch-typed heartbeat sensing device as claimed in Claim 1, wherein the inner plate and the outer plate of the second pair of conductors is integrally formed on a bottom surface and an upper surface of the watch band and adjacent to the second end of the casing.